

REMARKS/ARGUMENTS

Application Amendments

By the amendments presented, independent claim 1 would be rewritten to indicate that the product stream from the oxygenate-to-olefin (OTO) reactor system is fed to a “non-polymerization” derivative process reactor wherein propylene fed thereto is converted to the desired non-polymerization derivative products. Support for this amendment to claim 1 can be found in the original specification in Paragraph [0014].

Also by the amendments presented, claims 1 and 8 would be rewritten to specify a minimum concentration of oxygenate contaminants in the olefin product stream as being “about 1000 wppm”. Support for this amendment can be found in original claim 4. As a consequence of this amendment to claims 1 and 8, original claims 3, 4, and 9 would be cancelled without prejudice, and the dependency of claim 5 would accordingly be changed.

Also by the amendments presented, non-elected, and withdrawn claims 12-27 would also be cancelled without prejudice.

Upon entry of the claim amendments presented herein, claims 1, 2, 5-8, and 10-11 would remain in the application. No additional claims fee would be due as a result of these amendments, and these amendments would add no new matter, nor raise new issues.

Invention Synopsis

The invention, as it would be claimed after entry of the amendments presented herein, relates to a process for further reacting an olefin product stream produced via an oxygenate-to-olefin (OTO) process. This stream, which now includes both propylene and at least 1000 wppm of unreacted oxygenates, can be passed into a non-polymerization derivative process reactor wherein the propylene can be converted into one or more of certain recited non-polymerization propylene derivative products. The invention herein is based on the discovery that propylene from an OTO reactor, in the presence of at least a minimum amount of oxygenate contaminants, can be usefully converted to non-polymerization derivative products. (This can occur even though conversion of propylene to polymerized derivative products would be undesirably interfered with by such levels of oxygenate contaminants.)

Restriction Requirement

In the March 5, 2007 Office Action, the Examiner made final the previously applied restriction requirement with respect to the Group II claims (Claims 12-27). Accordingly, Group II claims 12-27 would be cancelled herein. Applicants hereby expressly preserve their right to pursue such non-elected, cancelled claims via one or more divisional applications.

Art Rejections

Claims 1, 3, and 5-11 stand finally rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, and claims 1-11 stand finally rejected under § 103(a) as allegedly being obvious over, US 2003/0045761 to *Kuechler et al* (hereinafter “Kuechler”). The Examiner maintains the position that Kuechler discloses or suggests the conversion of a propylene and oxygenate-containing product stream from an OTO reaction system to non-polymerization propylene derivative products. Such rejections are again respectfully traversed as they would apply to the claims as they would be amended herein.

By way of review, Kuechler describes a process whereby an olefin-containing stream, which can include propylene and which can be derived from an OTO reaction, is fed to an olefin reaction unit to form olefin derivative products. The Kuechler invention involves the recovery of olefin derivative products from the olefin reaction unit along with removal of a vent stream containing unreacted olefins that can be recycled to the olefin reaction unit. The olefin derivative products produced in the Kuechler process are preferably polyolefins, but can also include non-polymerized olefin derivative products, such as acrylonitrile, acrolein, propylene oxide, and the like. Kuechler further notes that contaminants, such as polar molecules and sulfur and arsenic-containing compounds, must be removed or minimized within the olefin-containing stream before the olefins therein are converted to olefin derivatives.

With respect to the anticipation rejection, it is submitted that Kuechler fails to disclose several essential elements of Applicants’ process claims as they would be amended herein. In the first place, as shown in paragraphs [0010], [0014], and [0015] of Kuechler, when an oxygenate to olefin reaction is used to provide the olefin source in the Kuechler process, the effluent from that OTO reaction is used to make polyolefins. There is, thus, no disclosure in

Kuechler of the aspect of Applicants' invention which involves directing an OTO effluent steam to a non-polymerization derivative process reactor.

More importantly, Kuechler makes it clear in paragraph [0088] that the olefin-containing stream used in the olefin reaction unit must have impurities/contaminants, such as polar molecules including oxygenates removed, so that such impurities/contaminates do not interfere with the preparation of olefin derivatives. In paragraph [0091] Kuechler further specifies that such impurities and contaminants, including the oxygenate carbonyl sulfide, should not comprise more than 10 wppm of the olefin product stream fed to the olefin reactor unit. Applicants' process claims, on the other hand, if amended as presented herein, would require that there be at least 1000 wppm of oxygenates present in the product stream from the OTO reactor before that stream is sent to the propylene derivatization reactor. Clearly, therefore, the Kuechler reference does not disclose this element of Applicants' amended claims.

With respect to the obviousness rejection, it is further submitted that, in addition to not disclosing Applicants' requisite non-polymerization reactor unit and minimum oxygenate levels in the feed stream to this unit, Kuechler also does not obviously suggest use of these two elements either. With respect to the processing of OTO-derived olefin streams, Kuechler clearly shows introduction of such streams into a polymerization reaction unit to form the desired polyolefins. Even if some non-polymer olefin derivatives are also produced in this unit, this type of polyolefin-producing reaction unit element of Kuechler certainly does not suggest the use of a non-polymerization reactor unit which Applicants' proposed amended claims require.

Furthermore, Kuechler clearly fails to suggest that a minimum amount of oxygenates is required to be present in the propylene-containing streams which are to be reacted in Applicants' process for production of non-polymer propylene derivatives. There is certainly no recognition in Kuechler that the preparation of non-polymerized desired propylene derivatives can tolerate significantly higher levels of oxygenate impurities than are permitted in the Kuechler process. Applicants' process as claimed herein, in fact, would require that there be 100 times the amount of oxygenates in the propylene derivative reactor feed stream than can be present in the corresponding process stream in the Kuechler setup.

In short, it is submitted that Kuechler fails to either anticipate or obviously suggest the propylene conversion process of Applicants' claims as they would be amended herein. Accordingly, entry of the claim amendments presented herein would raise no new issues and would serve to resolve the issues arising under 35 U.S.C. §§ 102 and 103 which have been discussed in the 3/5/07 and 9/14/07 Office Actions in this case.

CONCLUSION

Applicants have made an earnest effort to place their application in proper form and to distinguish their claimed invention from the applied prior art. WHEREFORE, reconsideration of this application, entry of the claim amendments presented, withdrawal of the final rejection of the claims under 35 U.S.C. §§ 102 and 103, and allowance of all of the claims which would be pending in the application, are all respectfully requested. Alternatively, entry of the amendments presented herein in order to place the claims in better form for appeal is respectfully requested.

It is also respectfully requested that the Examiner expeditiously notify Applicants' undersigned attorney as to the disposition of the amendments and arguments presented herein in accordance with M.P.E.P. § 714.13.

Any comments or questions concerning the application can be directed to the undersigned at the telephone number given below.

Respectfully submitted,

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